COSTS AND RETURNS FROM SUGARBEETS IN OHIO

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OBJECTIVES AND PROCEDURE

The purpose of this study was to determine physical inputs, receipts, expenses and profits for different yields of sugarbeets.

Costs of growing, harvesting and hauling sugarbeets to the plant were obtained for 1961 on 74 farms located in the following northwestern Ohio counties: Henry, Putnam, Van Wert, Allen, Lucas, Wood, Hancock, Hardin, Ottawa, Sandusky, Seneca and Erie. These costs were determined from special account books in which the farmers recorded the various cash expenditures for a particular acreage of sugarbeets. In these books, the farmers also kept daily records on the amount of time that unpaid labor, tractors and machines were used so that charges for the use of these items could be figured accurately.

Farmers, who participated in this study, were selected mainly on the basis of their agreement to keep the necessary records. Although this sampling procedure introduced a possible bias because record keepers may be better than average farmers, this possible bias was accepted because of the need for accurate and complete labor, power and machinery records for different size tractors and equipment.

RECEIPTS, EXPENSES AND PROFITS FOR VARIOUS YIELDS

On an acre basis, the total costs of producing sugarbeets went up as level of yield increased; but on a ton basis, costs decreased. Figures in Table 1 show that the cost of producing and marketing a 10 ton yield of sugarbeets was $108.50 an acre or $10.85 a ton. A 14 ton yield cost $127.85 an acre or $9.13 a ton. Although an 18 ton yield cost $143.95 an acre, the cost per ton was only $8.00.

Profits per acre were calculated to be $16.50 for a 10 ton yield, $47.15 for a 14 ton yield and $81.05 for an 18 ton yield. These profits were left after making a land charge of $18 and $20 an acre and paying the farmer $1.50 an hour for his labor. The price used in calculating gross receipts was $12.50 a ton which included government subsidy payments. This price approximates the average amount received per ton by the farmers during the seven year period 1955-61. A lower price per ton would reduce these profits, but a higher price would increase them.

[1/] Assistance in planning and supervising this study was given by Dale Friday, Extension Agronomist, The Ohio State University.

Table 1 - Receipts, Expenses and Net Income Per Acre for Different Yields of Sugarbeets in Northwestern Ohio

	Yield Per Acre		
	10 tons (20 farms)	14 tons (28 farms)	18 tons (26 farms)
Receipts[1]	$125.00	$175.00	$225.00
Expenses[2]			
Unpaid family labor	9.85	10.85	11.85
Hoeing, blocking and thinning	20.30	19.75	17.80
Tractor Power, Fuel and Oil	7.75	8.10	8.45
Machinery up to harvest	4.50	4.60	4.30
Harvesting	15.60	18.90	19.40
Hauling sugarbeets to plant	15.25	21.55	31.80
Fertilizer	14.50	20.10	25.80
Manure	.50	.90	1.20
Lime	.45	.30	.30
Seed	1.65	1.80	1.50
Spray for weed control	.15	1.00	1.55
Land	18.00	20.00	20.00
Total	108.50	127.85	143.95
Profit	16.50	47.15	81.05
Cost Per Ton	10.85	9.13	8.00

[1] Based on $12.50 a ton which was the average price from 1955-61.
[2] For 74 farms for 1961.

HOW EXPENSES WERE CALCULATED

All costs were based on 1961 production methods and prices. Labor charges for the farmer and his family (unpaid labor) were calculated at $1.50 an hour with the laborer providing his own house and food. Costs for hoeing, blocking and thinning are the actual amounts paid by the farmers to hire these jobs done.

The cost of operating a particular size tractor varies according to the number of hours it is used each year. However, average tractor and machinery charges, except for harvesters, were used in this study because no data were collected on the amount of tractor and machine time used on all land in the farming unit. Hourly rates used in figuring costs for the various size tractors were as follows: 2-plow, $1.05; 3-plow, $1.45; and 4-plow, $1.80. These rates are based on the average amount of time tractors were used on 153 other northwestern Ohio farms in 1959.

Charges for the use of the various pieces of machinery, which were made on an acre basis, were as follows: plow, $.95; disk, $.35 each time used; planter, $.75; cultivator, $.40 each time used; and harvester, $10 to $18, the amount depending upon yield per acre,

width of rows and annual use. These costs, except for harvesters, were taken from a northwestern Ohio study of 153 farms that were operated about the same as the sugarbeet farms. This study showed that on an hourly basis, machinery costs rose as size of equipment increased. But on an acre basis, machinery charges were about the same regardless of machine size, provided each piece of equipment was used the same number of hours. In other words, as size of machine increased, savings in time amounted to enough to keep machinery charges approximately the same on an acre basis if hours of use remained the same.

Charges for harvesting the sugarbeets were figured in two ways. When the work was hired, the actual charge made by the custom operator was used. In addition to the use of the harvesting equipment, this charge included a payment for the custom operator's labor and the use of his tractor. When the farmer harvested the sugarbeets with his own machinery, harvesting charges included only the estimated costs of owning the equipment. These included depreciation, obsolescence, repairs, storage, interest, insurance and taxes. In this case, charges for the farmer's labor and the use of his tractor for harvesting the crop were put in the unpaid family labor and tractor power costs. Sixty percent of the farmers owned harvesters, and 40 percent hired their sugarbeets harvested.

The cost of hauling the sugarbeets to the plant averaged about $1.50 a ton for the 10 and 14 ton yield groups. A slightly longer haul for the 18 ton yield group raised this cost to about $1.75 a ton.

Fertilizer costs were figured at $1.50 per ton of beets produced, minus the manure charge. This charge represents the cost of the amount of commercial fertilizer needed to replace the mineral elements removed by a particular yield of sugarbeets. Although actual fertilizer applications were obtained, this procedure for estimating fertilizer charges was used because of the difficulty of allocating accurately the residual effects of fertilizer. On some farms, heavy applications of fertilizer were made on the crop that preceded sugarbeets; but on other farms, only a light application was made. Also some farmers applied considerably more fertilizer to the sugarbeet crop than others, even though the yields were the same. A 1959 study of crop costs in northwestern Ohio showed that mineral nutrients were being replaced in the form of fertilizer and manure at about the same rate as they were being removed from the soil on a crop rotation basis.

Charges for manure and lime represent one-fourth of the total value of the amount applied to the sugarbeet land in the last four years. Manure was valued at $2.00 a ton. The average cost of lime was $3.25 a ton.

Cost of seed averaged about $.70 a pound for segmented, and $.80 a pound for monogerm.

Land charges included taxes and interest on the current valuation of the land. These charges do not include the use of any buildings except for the storage of machinery.

PHYSICAL INPUTS USED

Physical inputs used by farmers to produce an acre of sugarbeets are given in Table 2. Unpaid man labor includes the actual field work supplied by the farmer and his family. It also includes one hour per acre of miscellaneous labor such as hauling fertilizer from the dealer's delivery point to the farm, getting equipment ready for use, cleaning and storing equipment after use and making the necessary machinery repairs. It does not include any labor that was hired for hoeing, blocking, thinning and harvesting. The average amount of labor hired to harvest an acre of sugarbeets was one hour for the 10 ton yield group, 1.1 hours for the 14 ton yield group and 1.6 hours for the 18 ton yield group.

The amount of tractor time in Table 2 included only the use of the tractors owned by the farm operator. These figures do not include the use of any tractor that was hired to harvest the sugarbeets. The average amount of tractor time hired to harvest an acre of sugarbeets was one hour for the 10 ton yield group, 1.1 hours for the 14 ton yield group and 1.6 hours for the 18 ton yield group.

Table 2 - Physical Inputs Used in Producing an Acre of Sugarbeets on 74 Farms in Northwestern Ohio in 1961.

	Yield Per Acre		
	10 tons (20 farms)	14 tons (28 farms)	18 tons (26 farms)
Unpaid man labor, hours	6.6	7.2	7.9
Tractor power - 2 plow, hours	2.1	1.9	2.1
Tractor power - 3 plow, hours	1.8	2.3	1.7
Tractor power - 4 plow, hours	1.6	1.6	2.1
Fertilizer, pounds[1/]	415	575	735
Manure, tons	.3	.5	.6
Lime, pounds	250	190	200
Seed, pounds	2.2	2.5	2.1
Spary, pints	.2	1.3	2.0

1/ In terms of a 12-12-12 analysis which cost $70 a ton.

The number of pounds of fertilizer that was actually used by the sugarbeet crop was estimated by dividing the cost of this item in Table 1 by 3.5 cents which was the cost of a pound of 12-12-12 fertilizer. This analysis was selected for comparative purposes because applications of nitrogen, phosphorus and potash are now being recommended

in about a 1-1-1 ratio, except when sugarbeets follow a legume sod, which is not the usual practice. Applications of lime are in terms of agricultural ground limestone.

About 60 percent of the farmers planted monogerm seed at an average rate of three pounds per acre. The remainder planted segmented seed at an average rate of 1.7 pounds per acre. The average cost of producing an acre of sugarbeets was approximately the same regardless of the kind of seed planted. When segmented seed was planted, the cost of heeing, blocking and thinning averaged $21.05 per acre compared with $18.10 when monogerm seed was used. But the spray material charge averaged only $.50 an acre for the farms on which segmented seed was used compared with $1.25 for the monogerm.

For weed control, one-fourth of the farmers sprayed with endothal alone, at an average rate of 3.5 pints; 10 percent sprayed with endothal and TCA; and the remaining 65 percent used no spray.